

## STUDY ON *Enterococcus* spp. ABUNDANCE IN SEAWATER AND BEACH SAND IN MOUNT LAVINIA BEACH

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*Enterococcus* spp. is considered a faecal-indicator organism in marine water quality analysis. This study explored faecal pollution at Mount Lavinia beach by studying the abundance of enterococci and the impact of selected physical parameters in seawater and sand samples. Samples were collected from three selected sites in Mount Lavinia beach based on proximity to pollution outlets and potential for recreation. The composite sampling method recommended by the American Public Health Association was followed in this study, and the samples were analysed using membrane filtration method to quantify the enterococci abundance. Bacteria were isolated using m-*Enterococcus* agar and quantified as colony-forming units (CFU). Physical parameters, including temperature, pH, conductivity and salinity, were measured in collected seawater and sand samples. Statistical analysis of examined parameters was carried out using Python. According to Mann-Whitney *U* test, enterococci count showed a significant difference between sand and seawater in the study area ( $p = 0.006$ ). However, there were no significant differences between the three selected sites for enterococci counts in both seawater and sand samples ( $p > 0.05$ ). The mean enterococci counts were higher in sand than in seawater. Beach quality was evaluated according to the global standards given by the World Health Organization and United States Environmental Protection Agency (EPA). Accordingly, the 95<sup>th</sup> percentile value of enterococci (8995 CFU/100 mL) exceeded the maximum limit (500 CFU/100 mL), categorising the beach as Group D, the lowest microbial quality. The geometric mean enterococci concentration was 3,843 CFU/100 mL, which exceeded the EPA-recommended safety limit of 35 CFU/100 mL. The 90<sup>th</sup> percentile value (statistical threshold value) was 8,460 CFU/100 mL, which was above the EPA Statistical Threshold Value criterion of 130 CFU/100 mL. Therefore, the microbial beach quality indicates that the beach does not meet international water quality standards, making it unsuitable for recreational use.

**Keywords:** Beach quality, Colony forming units, *Enterococci*, Faecal pollution, Membrane filtration